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EXAMINER	
GEORGE, PATRICIA ANN	
ART UNIT	PAPER NUMBER
1789	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/577,582	DENEUS ET AL.	
	Examiner	Art Unit	
	Patricia A. George	1781	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 September 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/27/06; 9/07/07; 3/24/09*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 9, 11, 24, 28, 37, 40, and all claims dependent on them, are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 9 and 37 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: those that make the coagulate of the independent claim a concentrated coagulate.

Claims 28 and 40 are rejected as being indefinite because it is unclear as to how many non-sucrose substances are being claimed, such as:

Three: 1) high molecular weight protein substances, 2) polysaccharides and cell wall constituents, and also 3) low molecular weight organic or inorganic acids, amino acids and mineral substances;

Four: 1) high molecular weight protein substances, 2) polysaccharides, and 3) cell wall constituents, and also 4) low molecular weight organic or inorganic acids, amino acids and mineral substances; or

Six 1) high molecular weight protein substances, 2) polysaccharides, and 3) cell wall constituents, and also 4) low molecular weight organic or inorganic acids, 5) amino acids, and 6) mineral substances

Claims 11 and 24 appear to fail to further limit the base claims, because they claim to subject the juice from the main liming step to a first carbonation, however this step appears to already appear in the base claims.

Claims 1-2, 6, 9-11, 14-21, 23-24, 26-27, 32, 35, 37, 39, and 42-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Losva (RU 2 105 817 C1) in view of Mengelbier (1,372,891).

Losva teaches the concepts of a process for the purification of raw sugar sap (i.e. juice), including steps of preliming raw sugar sap (i.e. juice) by adding milk of lime; adding polyacrylamide; separation; and main liming with carbonate ions. Losva illustrates that the claimed process steps are known to be effective for processing sugar sap (i.e. juice). See reference starting at abstract.

Losva teaches all of the general process steps, as claimed.

When looking at applicant's own specification (AOS) for contributing factors of preliming, it is disclosed that lime is added until the mixture has a pH in a range of about 11.5. Losva similarly teaches that the ph is the controller for the concentrates of components added to the mixture and illustrates the use of close and similar ranges, such as about 10.8. See reference starting at first paragraph. Therefore the step of preliming of the sugar beet raw juice by adding milk of lime until a specific concentration

of about 0.1 to 0.3 g of CaO/100 ml of raw juice has been attained would be a matter of discovering the optimum or workable ranges, which Losva illustrates is within the skill of one in the art. See reference starting at second paragraph.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the process of extracting sugar beet juice, as Losva, to include a step of adding milk of lime until a specific concentration of about 0.1 to 0.3 g of CaO/100 ml of raw juice has been attained, as claimed, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller,* 220 F.2d 454, 105 USPQ 223 (CCPA 1955).

As for the preliming step being for "at least one of precipitation and coagulation of non-sucrose substances in the form of a coagulate", it would be reasonable for one in the art to expect that a similar process would have similar intended uses, including the step of preliming being "for at least one of precipitation and coagulation of non-sucrose substances in the form of a coagulate."

Losva teaches a step of adding a polyacrylamide solution to the mixture, in extremely small quantities, such as about 0.0011-0.008% of the mass of dry sap substances, which appear to be in a similar range as the claim of up to 1 to 8 ppm, because the lower control limits of both ranges are very close and similar to zero. Therefore, it would have been obvious to a person having ordinary skill in the art at the

time the invention was made to modify the process of extracting sugar beet juice, as Losva, to include a step of adding a polyacrylamide solution to the mixture, in extremely small quantities, such as the claimed range of up to 1 to 8 ppm, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller,* 220 F.2d 454, 105 USPQ 223 (CCPA 1955).

Losva is silent with regard to the molar mass of the polyacrylamide solution, however, it would be reasonable for one in the art to expect that similar components would have similar properties. Further, the selection of a polymer based on it molar mass would be within the skill of one in the art becasue one in the art would understand that the performance of the extraction of cellulose from beet sugar pulp is dependant on the molecular weight of polymers.

Losva teaches a step of filtering, which reads on step (c), the removing of coagulate from the preliming juice using at least one first removal apparatus to obtain a clear preliming juice. See reference starting at the 2nd full para. on page 6.

Losva teaches a step of (d) main liming the preliming juice obtained after removal of the coagulate by adding milk of lime until a concentration of about 0.1- 0.3% CaO (to pH 11.2-11.3), which appears to be close to the claimed range of 0.6 g of CaO/100 ml in the clear preliming juice. Further, it would have been obvious to a person having

ordinary skill in the art at the time the invention was made to modify the process of extracting sugar beet juice, as Losva, to include a step of adding milk of lime until a specific concentration of about 0.1 to 0.3 g of CaO/100 ml of raw juice has been attained, as claimed, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller,* 220 F.2d 454, 105 USPQ 223 (CCPA 1955). Furthermore, since a similar step of liming has been made obvious, above, it would also have been obvious to duplicate a similar essential step because it has been held that the duplication of similar method steps involves only routine skill in the art.

Losva teaches that steps of carbonation are well known, and therefore it would be reasonable to expect that one of skill would use a step of introducing carbon dioxide into the main liming juice or other steps of carbonating the sugar juice, as claimed, because the art illustrates that the use of steps of carbonation through the use of calcium bicarbonate (dissolved carbon dioxide) are known to be suitable for the intended purpose of processing sugar beet juice.

Losva is silent as to the source of the sap, such as the well known sugar beet, as claimed.

Mengelbier teaches it has been long know for sugar beets to be the source for sugar sap. See the last column of the document.

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the process for purifying a sugar sap, as Losva, to include a step wherein the sap is derived from a sugar beet, as claimed, because Mengelbier illustrates that one in the art would have a reasonable expectation of success because the art recognizes that sugar beets are suitable for the intended purpose of processing raw sugar saps.

Therefore, the modified teaching, of Losva, above, makes obvious all of the limitations of claim 1.

As for 18, 27, 39, 42-43, the modified teaching, as discussed above, differs only in the claimed intended uses, however, it would be reasonable for one of skill in the art to expect that a similar method would be suitable for similar intended uses, including the methods and products, as claimed.

As for claims 2, 19, 20 and 32, Losva teaches a step of adding a polyacrylamide solution to the mixture, in extremely small quantities, such as about 0.0011-0.008% of the mass of dry sap substances, which appear to be in a similar range as the ranges claimed, because the lower control limits of said ranges are very close and similar to zero.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the process of extracting sugar beet juice, as Losva, to include a step of adding a polyacrylamide solution to the mixture, in extremely small quantities, such as the claimed ranges of up to 1 to 8 ppm (including 1

to 3 ppm), since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller,* 220 F.2d 454, 105 USPQ 223 (CCPA 1955). Further,, such claimed ranges appear to be similar to the ranges provided by Losva, because the lower control limits of said ranges are very close and similar to zero.

As for claims 6, 21, and 35, wherein the removed coagulate is concentrated further using a second removal apparatus by removing a further clear preliming juice, since the modified teaching of Losva provides for first and second clear prelimed juice, it would have been obvious to duplicate a similar essential process step such as using a second removal apparatus by removing a further clear preliming juice, as claimed, when processing sugar beets, as Losva, because it has been held that the duplication of similar method steps involves only routine skill in the art.

As for claims 9 and 37, Losva is silent as to the amount of dry substance content in the concentrated coagulate, such as 40% to 70%, as claimed. However, it would be obvious that a similar method of processing beet sugar juice would provide a similar amount of dry substance content in the concentrated coagulate, as claimed.

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the process of extracting sugar beet juice which produces a condensed coagulate, as Losva, to include a step wherein the amount of dry substance content in the concentrated coagulate, is 40% to 70%, as claimed, because it

would be reasonable for one in the art to expect that a similar process would yield similar results, including a similar quantity of dry substance content in the concentrated coagulate.

As for claims 10 and 23, Losva teaches the combination of the clear preliming juices through steps of recirculation prior to the step of main liming. See reference starting at page 3.

As for claims 11 and 24, see the discussion above.

As for claim 12, since the modified teaching of Losva provides for similar ph ranges, before and after liming, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the process of extracting sugar beet juice, as Losva, to include a step wherein the pH of the main liming juice is lowered stepwise to from 10.6 to 11.4 by adding carbon dioxide, as claimed, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller,* 220 F.2d 454, 105 USPQ 223 (CCPA 1955).

As for claim 14. Losva teaches the first carbonated juice concentrate recirculated, as discussed above, which reads on is used for preliming the beet raw juice as claimed.

As for claims 15 and 26, Losva teaches it is known to use steps of carbonatation for both the first filtrated juice and then again after second filtration, which reads on is subjected to a second carbonatation by adding carbon dioxide to obtain a second carbonated juice.

As for claims 16-17, the teaching above provides steps of filtration, which reads on the use of a filter (i.e. separator) to obtain a second carbonated juice concentrate, as in claim 16; and the use of filtration by membrane filters, as in claim 17. As for the steps of filtration, since Losva teaches filtration steps as a variety of stages during processing, it would have been obvious to duplicate similar steps, since it has been held that the duplication of similar method steps involves only routine skill in the art.

Claims 3 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Losva (RU 2 105 817 C1) in view of Mengelbier (1,372,891), as cited in claims 1-2, 6, 9-12, 14-21, 23-24, 26-27, 32, 35, 37, 39, and 42-43 above, further in view of Guyot (EP 1022343 A1).

As for claims 3 and 33, Losva is silent as to wherein the first removal apparatus is a static or dynamic decanter.

Guyot teaches that decanters (9) are known to be suitable for the intended use of processing sugar beet juice, and therefore the step of the first removal apparatus is a static or dynamic decanter is obvious.

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the process of extracting sugar beet juice, as Losva, to include a step wherein the first removal apparatus is a static or dynamic decanter, as claimed, because Guyot teaches that decanters are known to be suitable for the intended use of processing sugar beet juice, and therefore one in the art would have a reasonable expectation of success that such a step would be effective for processing sugar beets.

Claims 4, 5, and 34, are rejected under 35 U.S.C. 103(a) as being unpatentable over Losva (RU 2 105 817 C1) in view of Mengelbier (1,372,891), as cited in claims 1-2, 6, 9-12, 14-21, 23-24, 26-27, 32, 35, 37, 39, and 42-43 above, further in view of Rawlings (2,413,844).

Losva is silent with regard to the type of first apparatus used being a centrifuge, as in claim 4; or a pan centrifuge or decanter centrifuge, as in claims 5 and 34.

Rawlings teaches that the use of pan and centrifuge (i.e. pan centrifuge) is suitable for the processing of sugar beet products. See reference starting at bottom half of col. 16.

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the process of extracting sugar beet juice, as Losva, the first removal apparatus is a pan centrifuge, as claimed, because Rowlings teaches that centrifuges are known to be suitable for the intended use of processing sugar beet

products, and therefore one in the art would have a reasonable expectation of success that such a step would be effective for processing sugar beets.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Losva (RU 2 105 817 C1) in view of Mengelbier (1,372,891), as cited in claims 1-2, 6, 9-12, 14-21, 23-24, 26-27, 32, 35, 37, 39, and 42-43 above, further in view of Briones (DE 19628183 A1).

Losva is silent as to the second removal apparatus used is at least one membrane filter press.

Briones teaches membrane filter presses are known to be suitable for the intended use of processing sugar juices. See reference starting at abstract.

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the process of making sugar juice, as Losva, to include a step wherein the second removal apparatus used is at least one membrane filter press, as claimed, because Briones provide one in the art with a reasonable expectation of success by illustrating that membrane filter presses are known to be suitable for the intended use of processing sugar juices.

Claims 8, 22, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Losva (RU 2 105 817 C1) in view of Mengelbier (1,372,891), as cited in claims 1-2, 6, 9-12, 14-21, 23-24, 26-27, 32, 35, 37, 39, and 42-43 above, further in view of Cottrell (2,281,025).

As for the claims 8, 22, and 36, wherein the second removal apparatus used is one or more of at least one of decanter centrifuge(s), pan separators, and vacuum rotary filters, Losva is silent.

Cottrell teaches the use of vacuum rotary filters are known to be suitable for the processing of sugar beet products. See reference starting at page 2, note col. 2 lines 1 and 49.

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the process of making sugar juice, as Losva, to include a step wherein the second removal apparatus used is a vacuum rotary filter, as claimed, because Cottrell provides one in the art with a reasonable expectation of success by illustrating that vacuum rotary filters are known to be suitable for the intended use of processing beet sugar products.

Claims 13 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Losva (RU 2 105 817 C1) in view of Mengelbier (1,372,891), as cited in claims 1-2, 6, 9-12, 14-21, 23-24, 26-27, 32, 35, 37, 39, and 42-43 above, further in view of Junker (DE 3238783 A).

Losva fails to teach that the first carbonated juice is filtered by means of a candle filter to obtain a first carbonated juice concentrate and a first clear carbonatation juice, as in claims 13 and 25.

Junker illustrates that the art finds the use of a candle filter as being suitable for the filtration of limed beet sugar juice. See reference starting at abstract.

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the process of making sugar juice, as Losva, to include a step wherein the first carbonated juice is filtered by means of a candle filter, as claimed, because Junker provides one in the art with a reasonable expectation of success by illustrating that the use of candle filters are known to be suitable for the intended use of filtering limed beet sugar jiuce. As for obtaining a first carbonated juice concentrate and a first clear carbonatation juice, as claimed, it would be reasonable for one in the art to expect a similar process step would obtain similar results.

Claims 28-30, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Losva (RU 2 105 817 C1) in view of Mengelbier (1,372,891), as cited in claims 1-2, 6, 9-12, 14-21, 23-24, 26-27, 32, 35, 37, 39, and 42-43 above, further in view of the combination of Gray, Owens, Hippchen, Vermeer, and Volkmar.

Gray of Fungal protein for food and feeds. IV. Whole sugar beets or beet pulp as a substrate; Economic Botany; Volume 20, Number 4, 1966.

Owens of USPN 2,754,233.

Hippchen of USPN 4,111,714.

Vermeer of USPN 5,653,970.

Volkmar of USPN 2,243,381.

As for claim 28-30, applicant appears to claim a variety of components which are inherently present in the raw sugar beets, that Losva is silent about, and therefore each and every component as claimed would inherently be included in a raw sugar beet juice.

As for claim 28, wherein the non-sucrose substances present in the raw juice are:

For high molecular weight protein substances, see the reference of Gray which illustrates the presence of fungal protein on sugar beets.

For polysaccharides, such as dextran, as in claim 30, see the reference of Owens which teaches that bacteria on the beets cause fermentation of the sugar which is then converted into lactic acid, acetic acid, carbon dioxide, or into polysaccharides such as dextrans.

As for the cell wall constituents, such as pectin as in claim 29, and the amino acids, see Hippchen starting at col. 2, line 15.

For low molecular weight organic or inorganic acids, such as glycolic acid, see Vermeer who teaches sugar beets naturally comprise glycolic acid, in the Brief Summary.

As to mineral substances, note the top of page 1, wherein Volkmar teaches there are essential minerals in sugar beets.

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the process of making sugar juice, as Losva, to include any sub-components that are inherently provided by the claimed components added to the mixture, such as those listed in claims 28-30, because the combination of Gray, Owens, Hippchen, Vermeer, and Volkmar provide teachings which illustrate that each and every one of the components claimed are inherent to sugar beets.

Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Losva (RU 2 105 817 C1) in view of Mengelbier (1,372,891), as cited in claims 1-2, 6, 9-12, 14-21, 23-24, 26-27, 32, 35, 37, 39, and 42-43 above, further in view of Ekern (5,759,283).

In claim 41, applicant appears to claim a variety of components which are inherently present in the raw sugar beets, that Losva is silent about, and therefore each would inherently be included in a raw sugar beet juice.

As for a high phosphorus content, as in claim 41, Ekern teaches non-sugar impurities of the raw sugar beets in clued phosphates, which a known to have a high phosphorus content.

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the process of making sugar juice, as Losva, to include a high phosphorus content, as claimed, because Ekern teaches that said component is inherent to sugar beet juice.

Claims 38 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Losva (RU 2 105 817 C1) in view of Mengelbier (1,372,891), as cited in claims 1-2, 6, 9-12, 14-21, 23-24, 26-27, 32, 35, 37, 39, and 42-43 above, further in view of the Southern Minnesota Sugar Cooperative.

Southern Minnesota Sugar Cooperative: Booklet of 1999; http://web.archive.org/web/19990219124606/http://www.sbreb.org/brochures/SugarCoop/.

As for claims 38 and 44, the byproducts of the process of purifying raw sugar beet juice, which is known to be comminuted and dried (e.g. concentrated coagulate), as in claim 38; and comminuted, mixed with molasses and dried (e.g. the non-sucrose substance concentrate), as in claim 43.

Losva is silent as to the handling of the bi-products of the processing of sugar beets.

The Southern Minnesota Sugar Cooperative (SMSC) teaches that the byproducts of sugar beet processing are treated as claimed. See the section titled "By-Products".

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the sugar beet process, as Losva, to include methods of treating by-products of the process, as claimed, because SMSC provides one in the art with a reasonable expectation of success by illustrating that it is suitable to comminuted, mixed with molasses and dry the by-products of the sugar beet process for the intended use of processing sugar beets.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patricia A. George whose telephone number is (571) 272-5955. The examiner can normally be reached on Mon. -Wed. between 9:00 am and 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith Hendricks can be reached on (571) 272-1401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Patricia A George
Examiner
Art Unit 1781

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Examiner, Art Unit 1789

/Keith D. Hendricks/
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